Large Spark-Ignition Engine Exhaust Emission Standards (> 19 kW), HC+NOx/CO in g/kW-hr (Durability Period)

<table>
<tr><th>Displacement Category</th><th>Test Cycle</th><th>2001</th><th>2002</th><th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th><th>2015 +</th></tr>
<tr><td>≤ 825 cc</td><td rowspan="2">Steady-state testing</td><td rowspan="2">–</td><td colspan="9" rowspan="2">12.0 / 549 (1000 hours or 2 years)</td><td colspan="5">8.0 / 549 (1000 hours or 2 years)</td></tr>
<tr><td>>825 cc - ≤ 1.0 liter</td><td colspan="4">6.5 / 375 (1000 hours or 2 years)</td><td>0.8 / 20.6 [d] (1000hr/2yr)</td></tr>
<tr><td rowspan="3">> 1.0 liter</td><td>Steady-state testing</td><td colspan="3">4.0 / 49.6[a]</td><td colspan="2">4.0 / 49.6 (3500 hours or 5 years)</td><td colspan="2">2.7 / 4.4 [b] (5000 hours or 7 years)</td><td colspan="5">0.8 / 20.6 (5000 hours or 7 years)</td></tr>
<tr><td>Transient testing</td><td colspan="6">–</td><td colspan="2">2.7 / 4.4 [b] (5000 hours or 7 years)</td><td colspan="5">0.8 / 20.6 (5000 hours or 7 years)</td></tr>
<tr><td>Field testing</td><td colspan="6">–</td><td colspan="7">3.8 / 6.5 [c] (5000 hours or 7 years)</td></tr>
</table>

a) A manufacturer must show that at least 25% of its California engine sales comply with the standards in 2001, 50% in 2002, and 75% in 2003.

b) For the 2007 through 2009 model years, manufacturers may alternatively certify their engines according to the following formula: $(HC + NOx) \times CO^{0.784} \leq 8.57$

c) Starting in 2007, manufacturers may apply the following formula to determine alternate emission standards: $(HC + NOx) \times CO^{0.791} \leq 16.78$

d) For 2011 and subsequent model years, large spark-ignition engines used in off-highway motor vehicles that, with the exception of payload capacity, meet the "Off-Road Sport Vehicle" or "Off-Road Utility Vehicle" definitions need not meet the 2015 and subsequent exhaust emission standards.

Large Spark-Ignition Engine Evaporative Emission Standards

Displacement Category	Model Year	Evaporative Emission Standards	Requirements
≤ 1.0 liter	2011 and later	Same as SORE ≥ 225 cc	Same as SORE ≥ 225 cc
> 1.0 Liter	2007 and later	Evaporative hydrocarbon emissions (0.2 g/gal of fuel tank capacity)	Use a tethered or self-closing gas cap on a fuel tank that stays sealed up to a positive pressure of 24.5kPa (3.5 psig) or a vacuum pressure of 0.7 kPa (0.1 psig).
		Fuel lines	For nonmetallic fuel lines, manufacturers must specify and use products that meet the Category 1 specifications in SAE J2260 (November 1996).
		Prevent fuel boiling at an ambient temp	Note that gasoline with a Reid vapor pressure of 62 kPa (9 psi) begins to boil at about 53 °C.
		Design-based certification	Design-based certification as described in subpart F, Title 40 CFR 1048.105 and 1048.245, as adopted July 13, 2005, may be used instead of generating new emission data.

Large Spark-Ignition Engine Fleet Average Emission Level Standards, HC+NOx in g/kW-hr

Fleet Type	Initial Compliance Date		
	1/1/2009	1/1/2011	1/1/2013
Large Forklift Fleet (≥ 26 pieses of equipment)	3.2	2.3	1.5
Medium Forklift Fleet (4 - 25 pieses of equipment)	3.5	2.7	1.9
Non-forklift Fleet (≥ 4 sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination)	4.0	3.6	3.4

Large Spark-Ignition Engine Optional Exhaust Emission Standards in g/kW-hr

Model Year	Engine Displacement	Durability Period	HC+NOx	CO
2007 - 2009	> 1.0 liter	5000 hours or 7 years	2.0	6.4
2007 - 2009	> 1.0 liter	5001 hours or 7 years	1.3	11.1
2007 - 2009	> 1.0 liter	5002 hours or 7 years	0.8	20.6
2007 - 2009	> 1.0 liter	5003 hours or 7 years	0.5	20.6
2007 - 2009	> 1.0 liter	5004 hours or 7 years	0.3	20.6
2007 - 2009	> 1.0 liter	5005 hours or 7 years	0.1	20.6
2010 and subsequent	> 1.0 liter	5006 hours or 7 years	0.5	20.6
2010 and subsequent	> 1.0 liter	5007 hours or 7 years	0.3	20.6
2010 and subsequent	> 1.0 liter	5008 hours or 7 years	0.1	20.6